

# Dual Needs: Contraceptive and Sexually Transmitted Infection Protection in Lusaka, Zambia

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**CONTEXT:** Lusaka, Zambia, has both a high prevalence of HIV infection and relatively high contraceptive prevalence for Sub-Saharan Africa. In this context, family planning clinics have the potential to play an important role in the prevention of HIV and other sexually transmitted infections (STIs).

**METHODS:** Data from a 1998 situation analysis of eight public-sector family planning clinics in Lusaka are used to measure the readiness of these clinics to provide STI prevention and diagnostic services. Observations of 2,452 client-provider interactions and data from interviews with 42 providers and 3,201 clients are used to look at the exchange of information on nonbarrier methods' inability to protect against STIs. Finally, multivariate analysis is used to investigate the determinants of both having received that information and having retained it among users of methods other than the condom.

**RESULTS:** Multivariate results indicate that clients who did not use condoms who were told that their method offers no protection against STIs had three times the odds of knowing this at their exit interview as did women who were not told that fact. Among clients who were informed by their provider, those with higher educational attainment, those whose providers had fewer years of schooling, and those attending smaller clinics were all more likely than other women to have correctly "received" the STI prevention message.

**CONCLUSIONS:** Although efforts are being made to integrate STI services into family planning clinics in Zambia, these efforts need reinforcement. The educational levels of both providers and their clients may be barriers to a successful transfer of STI prevention information during client-provider interactions.

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A reproductive health approach to family planning service delivery takes a comprehensive view of individuals' circumstances and moves beyond their contraceptive needs alone. In an environment with high rates of HIV and other sexually transmitted infections (STIs),\* a reproductive health approach must therefore include some degree of integration of STI services with traditional family planning services.

Before the 1994 International Conference on Population and Development in Cairo, the demographic emphasis in family planning strategies resulted in a focus on effective contraceptive methods. This focus often precluded barrier methods, which were considered less likely to be used consistently and correctly, and therefore less effective in pregnancy prevention. Although family planning services clearly provide contraceptive protection to clients, STI prevention through the use of condoms has received less attention. The dual-protection message—i.e., the promotion of the simultaneous use of two methods (the condom along with another method) or promotion of condoms alone for

both pregnancy and STI prevention—needs to overcome some aspects of traditional family planning messages and providers' negative bias toward nonmedical methods.

Providing information on ways to protect against both unwanted pregnancy and STIs during a family planning consultation is an obvious first step toward integrating STI and family planning services. Integrating STI case management, however, is not as feasible as providing information alone, as these special services require additional infrastructure and provider training, which may overburden relatively new family planning programs.<sup>1</sup> Furthermore, because laboratory facilities are rarely available in resource-poor settings, STI diagnosis often relies on the syndromic approach, which has generally shown weak sensitivity and specificity for many STIs among women, particularly cervical infections.<sup>2</sup> Nevertheless, few would disagree that, at a minimum, the integration of primary STI prevention into family planning programs is a feasible and desirable goal.<sup>3</sup>

Providing a dual-protection message is especially relevant in Zambia, where the HIV prevalence rate is among the highest in Sub-Saharan Africa.<sup>4</sup> The high risk of contracting HIV is associated with such socioeconomic and cultural factors as being educated, living in an urban area and being in a polygamous union.<sup>5</sup> Estimates of HIV prevalence among Zambian urban residents currently range from 25% to 32%,

\*In this article, we use the term "sexually transmitted infections," which has been recommended by the World Health Organization (WHO) as not carrying the stigmas associated with the term "sexually transmitted diseases," and as being comprehensive enough to include asymptomatic cases. (Source: WHO, Sexually transmitted diseases or sexually transmitted infections? [http://www.who.int/HIV\\_AIDS/knowledge/sexually\\_transmitted\\_diseases\\_or.htm](http://www.who.int/HIV_AIDS/knowledge/sexually_transmitted_diseases_or.htm), accessed Apr. 30, 2002.)

with women having higher rates of infection than men.<sup>6</sup>

Family planning programs may offer one way of reaching women with information about how to protect themselves, as these programs serve large numbers of women at risk of STIs, including HIV. In 1996, overall contraceptive prevalence among married Zambian women of reproductive age was 26%, and it reached 35% in Lusaka, the capital.<sup>7</sup> Family planning clinic attendance is fairly high in Zambia in general and in the urban center of Lusaka in particular. For example, 73% of users overall cited medical facilities as their method source and 57% cited public hospitals or clinics.

The Ministry of Health sees these clinics as appropriate places to discuss issues of sexual behavior and fertility control, to offer STI information and services and to provide methods for contraception and STI prevention.<sup>8</sup> A national situation analysis of family planning clinics in Zambia in 1997 showed that most offered education and counseling about HIV and AIDS, and also referred clients for HIV testing.<sup>9</sup> (In addition, nongovernmental organizations involved in reproductive health issues are currently collaborating with the Ministry of Health to promote STI prevention.<sup>10</sup>)

The Ministry of Health promotes policies that encourage the integration of health services in general; in 1991, it began a health care reform process that advocated decentralizing and moving away from vertical programs to more integrated health programs. As part of this process, the ministry developed guidelines for family planning services that explicitly outlined strategies for integrating STI and HIV prevention into maternal and child health and family planning services.<sup>11</sup>

Although national policy promotes integrated services, it is not clear whether clinics have the environment—that is, the necessary equipment, supplies and trained staff—to provide these services and to what extent integration is actually being implemented. To address these issues, we gathered data from eight public family planning clinics in Lusaka. The data we present here assess the extent to which clinics are ready to provide integrated services, in terms of both preventive and diagnostic STI services.

We also examine how integration is being implemented by focusing on the information-exchange process between providers and clients. Specifically, we focus on the extent to which providers seek information on behaviors and conditions that increase clients' risk of an STI, as well as the extent to which providers give information on STI protection during family planning visits. Finally, we look at clients' knowledge of which methods protect against STIs, and explore the factors that might affect the successful transfer of information from provider to client on STI protection. Although assessing whether information exchange led to changes in behavior is not within the scope of this article, we treat this transfer of information as the first step in the process.

## METHODOLOGY

This article presents data from a situation analysis conducted in eight of the 35 public family planning clinics in Lusaka. These clinics were purposively selected because

of their involvement in a larger project to assess how the introduction of additional family planning methods\* can improve the quality of reproductive health care. Situation analysis methodology<sup>12</sup> measures the readiness of a facility to provide services, as well as the quality of these services, through four instruments—an inventory of the facility, an interview with service providers, direct observations of client-provider interactions, and exit interviews with family planning clients. We modified the instruments used in a 1997 national situation analysis in Zambia for our quality-of-care study, and incorporated additional changes after two rounds of pretesting.

The data were collected from August to December of 1998. Only family planning clients receiving “new” methods† were included in the sampling for observations and exit interviews because these women would necessarily receive more information on their method and a more in-depth needs assessment than would resupply clients.

All clients receiving a new method were asked to participate, and client-provider interactions were observed whenever feasible. Although standard situation analyses collect data in a given facility on a single day, we gathered information over a 3–4 month period‡ at each facility to maximize the number of participants.

The research team completed eight facility inventories, 42 provider interviews and 3,201 client exit interviews; we observed the interactions of 2,452 of these women with providers. We compared the social and demographic characteristics of clients whose consultations we were able to observe with the characteristics of the 749 clients whose sessions were not observed. There were no statistically significant differences between the two groups in educational level, age, marital status or religion. For the purposes of univariate and bivariate analysis, therefore, we present exit-interview data for all women, rather than data only for those who were both interviewed and observed.

Although we collected data on a wide range of clinic and provider characteristics, we focus on variables that are especially associated with integrated services, such as the availability at the clinic of information, education and communication (IEC) materials on STIs and provider training in STI counseling. Data on the cost of services were not collected. Differences by client characteristics were assessed using chi-square tests and t-tests for categorical and con-

\*All eight clinics provided the following standard program methods: the pill, the two-month injectable, emergency contraception, the male and female condom, natural family planning and the lactational amenorrhea method. For this project, the implant was introduced in two of the eight clinics, while the three-month injectable was added in four. For an in-depth discussion of the intervention and preliminary findings see: Chinganya O, Chikamata D and RamaRao S, *Changes in Contraceptive Use Dynamics After the Introduction of Norplant: Results of the Baseline Data and First Follow-up, Lusaka Impact Study*, Lusaka, Zambia: Central Statistical Office, 2000.

†Clients receiving a new method are defined as those who had never used a family planning method before; those who were switching from one method to another; and those who were starting method use after having stopped for a substantial period, usually to achieve pregnancy.

‡Data collection occurred for three months for all but the two smallest facilities, for which the fielding of data was extended to four months to increase the sample size.

**TABLE 1. Mean values (and standard deviations) and percentage distribution of family planning providers (N=42) in eight public family planning clinics, by selected characteristics, Lusaka, Zambia, August–December, 1998**

Characteristic	%/mean
<b>MEANS</b>	
<b>Age</b>	39.6 (±5.8)
<b>No. of children</b>	3.6 (±2.0)
<b>% DISTRIBUTIONS</b>	
<b>Marital status</b>	
Married	73.8
Widowed	16.7
Divorced/separated	7.1
Single	2.4
<b>Education</b>	
Secondary	64.3
Postsecondary	35.7
<b>Religion</b>	
Protestant	81.0
Catholic	19.0
<b>Ever used family planning</b>	
Yes	90.5
No	9.5
<b>Ever used male or female condom</b>	
Yes	35.7
No	64.3
<b>Currently using a method</b>	
Yes	52.4
No	47.6
<b>Total</b>	100.0

tinuous variables, respectively. Because the size of the clinic is thought to influence the quality of client-provider interactions, we divided the eight clinics into two broad categories. Four were categorized as large (corresponding to the Ministry of Health's designation of levels A and B based on client load and availability of services) and four were classified as small (level C, per the Ministry of Health's classification scheme).

Finally, we used multivariate logistic regressions to explore how three levels of characteristics—those of clients, of providers and of clinics—affected clients' knowledge about their method's ability to provide protection against STIs. We asked new users of methods other than the condom—the pill, the implant, the IUD and the injectable—whether their method protects against STIs.\* Users of these methods accounted for 94% of the clients who were interviewed and for 93% of those who were observed.

Exit-interview data were linked with the information gleaned from client-provider observations and provider interviews. As mentioned earlier, we lack observation data for 749 of the 3,201 women who participated in exit inter-

views. Furthermore, an additional 221 cases were lost when exit-interview data could not be linked with provider-interview data (the provider was unidentifiable or was not interviewed). Therefore, the final sample for analysis using data from all three sources was 2,231 women.

## THE SAMPLE

### Provider Characteristics

All 42 of the interviewed providers are female nurses or midwives; their ages range from 23 to 53 years, with a mean age of 40 (Table 1). Three-quarters (74%) are married and 81% are Protestant. All but three providers have at least one child; the number of children ranges from zero to nine, with 63% having 2–5 children (not shown). Although 91% have ever used a family planning method, only 52% were using a method at the time of the study. All providers have either a secondary or a postsecondary education and have been providing family planning services at the study clinic for five years, on average (range, 1–16 years, not shown).

### Client Characteristics

The family planning clients who received a new method from these eight clinics are generally young, with 82% being younger than 30 (Table 2). Nearly all (94%) are currently married; 3% have never been married. Although almost all clients at the study clinics have had some education (94%), only 38% have completed more than primary schooling. Three quarters are Protestant (75%) and 23% are Catholic. Twenty-four percent of these women have paid employment, and 50% have lived in Lusaka since birth (not shown). Almost all clients (99%) have had at least one child; the mean number of children is 2.6.

Just over one-fifth of family planning clients (22%) say they want no more children (not shown). About one in seven (15%) do not know their partner's age, but among those who do know, his mean age is 31 years. On average, male partners are 6.3 years older than the family planning clients.

Of clients who received a new method at one of the eight study clinics, 55% chose the pill (40% the combined pill and 15% the progestin-only pill). The injectable was the next most commonly accepted method (36%), with condoms (male and female, 3%), spermicides (3%), the implant (2%) and the IUD (1%) being chosen by far fewer women. This overall client profile indicates that the sample consisted of sexually active young women who would benefit from information on ways to protect themselves against STIs.

## RESULTS

### Readiness for Integration

For STI services to be integrated with family planning services, infrastructure—i.e., supplies, equipment, laboratory facilities and provider training—is needed. Facility inventories and staff interviews can be used to indicate a facility's readiness to provide STI prevention and case management services.

\*The 16 women relying on emergency contraception, natural family planning, the lactational amenorrhea method or tubal ligation were not asked about their method's ability to prevent STIs, and are therefore excluded from the analysis. The 83 spermicide users (3% of the sample) were also excluded; at the time of the study, it was thought that spermicides might offer some STI protection, so what would constitute a "correct" answer on whether this method provides STI protection is unclear.

• **Facility sites.** Inventories indicate that all eight study clinics have the necessary infrastructure to integrate some STI services into their activities. All offer family planning services on five to seven days per week, with STI counseling and treatment also available on those days, although one clinic set aside one day for family planning only. All facilities offer male and female condoms as part of their method mix and are thus ready to provide methods that offer dual protection.

In terms of IEC materials, all eight clinics have male condom samples on display, and six also have female condoms on display. Seven clinics have at least one type of IEC material on STIs (either flipcharts, brochures or posters), and six have some type of material on HIV. Although none of the clinics can analyze HIV tests on-site, seven have the capacity to collect blood samples and send them to outside laboratories. All eight provide syphilis screening on-site, and all refer clients for gonorrhea and chlamydia tests.

Despite general readiness to provide integrated services, running out of condoms appears to be a potential problem. For example, although all eight clinics provide both types of condoms, three had run out of male condoms at least once in the six months prior to the study, and one ran out of female condoms during that period.

• **Clinic staff and training.** Providers have the training to give information on STI prevention, but they are less prepared to diagnose and treat infections. All 42 providers have received basic or refresher training in STI counseling, with 71% having also received training in HIV counseling. Eighty-six percent reported training in STI and HIV risk assessment, 79% in syndromic management and 67% in laboratory diagnosis of STIs. Only 43% of providers, however, have been trained to perform STI and HIV tests.

Clients' characteristics did not pose a barrier to the provision of male and female condoms. For example, no provider set parity requirements, only one required that a woman be married, and another insisted that the client's husband consent to her being given the male condom. Some providers, however, imposed age restrictions for condom use: Thirty-six percent of providers had a minimum-age requirement for the male condom, and 43% imposed such an age restriction on clients requesting female condoms. Minimum-age requirements ranged from seven to 17 years of age, with most minimums falling between ages 13 and 17 (55% of minimum-age requirements for clients asking for male condoms, and 61% of those for clients requesting female condoms). Therefore, although barriers to condom provision based on client characteristics are minimal overall, access to condoms is generally more restricted for adolescents than it is for older clients.

To assess the extent to which providers had adopted the dual-protection message, we asked them what advice they would give to women at risk of an STI. More than three-quarters would advise her to use condoms in addition to a nonbarrier method. This proportion varied somewhat by the nonbarrier method the client was already using: Seventy-nine percent of providers would tell at-risk pill users

**TABLE 2. Mean values (and standard deviations) and percentage distribution of family planning clients (N=3,201), by selected characteristics**

Characteristic	%/mean
<b>MEANS</b>	
<b>Age</b>	24.9 (±5.7)
<b>No. of children</b>	2.6 (±1.8)
<b>% DISTRIBUTIONS</b>	
<b>Age</b>	
<20	14.9
20–24	41.2
25–29	25.7
30–34	10.4
35–39	5.4
≥40	2.4
<b>Marital status</b>	
Married	93.8
Cohabiting	0.5
Widowed/divorced/separated	2.9
Single (never married)	2.7
<b>Education</b>	
None	5.7
Primary	56.5
Secondary	35.7
Postsecondary	2.1
<b>Religion</b>	
Protestant	74.5
Catholic	23.4
Muslim	0.5
Other	0.4
None	1.1
<b>No. of living children</b>	
0	0.8
1	30.3
2	28.6
3	17.9
≥4	22.4
<b>Ever pregnant</b>	
Yes	99.5
No	0.5
<b>Ever miscarried</b>	
Yes	13.1
No	86.9
<b>Ever had stillbirth</b>	
Yes	3.5
No	96.5
<b>Method received</b>	
Pill	55.1
Injectable	36.3
Condom	3.0
Spermicide	2.6
Implant	1.6
IUD	0.9
Other†	0.5
<b>Total</b>	100.0

†Includes emergency contraception, natural family planning, lactational amenorrhea method and tubal ligation. Note: Eleven observations are missing for the distribution by age.

to also use a condom, while 81% would similarly advise implant users and 83%, injectable users. Ninety-five percent of providers reported having advised a client to use condoms for STI protection in the last three months.

• **Information exchanged during consultations.** To a large ex-



**TABLE 3. Percentage of observed consultations that included specific elements of STI risk assessment and information, according to clients' educational level**

Element	All (N=2,452)	None or primary (N=1,511)	≥secondary (N=941)
<b>Risk-assessment questions</b>			
Any STI concerns?	11.9	13.3	9.8**
No. of sex partners?†	3.3	3.0	3.6
<b>Symptoms assessed</b>			
Vaginal bleeding	38.7	39.5	37.5
Vaginal discharge	12.3	12.9	11.3
Genital itching	5.3	5.6	4.8
Pelvic pain	12.2	13.1	10.7
STI symptoms in general	62.7	65.6	58.0***
At least one of the above symptoms	74.0	75.5	71.6*
<b>Information exchanged</b>			
Discussed STI protection	46.7	49.0	42.8**
Told method offers no STI protection‡	48.1	50.8	43.6**

\*p<.05. \*\*p<.01. \*\*\*p<.001. †Clients switching from one method to another were asked whether they had had any new partners since their last visit, not their overall number of sex partners. ‡Limited to 2,278 women using methods other than the condom. Note: Significance of differences by educational level determined by chi-square tests.

tent, discussions\* about STIs are already occurring within the family planning context, both in terms of the questions that providers ask their clients and in the information they give. We examined the content of client-provider interactions overall and by level of clients' education (Table 3).

The client's STI history was "discussed" during 81% of the client-provider interactions we observed.† Only 3% of all observed consultations, however, included a discussion of the client's number of sexual partners. In 12%, clients were asked if they had concerns about their risk of contracting an STI; the proportion asked about such concerns was significantly higher among less-educated clients than among better-educated clients. In 74%, providers asked clients about at least one symptom; providers were significantly more likely to ask this question of less-educated clients than of better-educated clients.

During 47% of the consultations we observed, providers discussed STI protection with their clients; these discussions, too, were significantly more likely to be held with less-educated than with better-educated clients. In the 2,278 observed consultations with clients who did not use condoms, 48% involved the provider telling her client that the method does not protect against STIs. Although these re-

\*We use the term "discussion" loosely, since we did not measure the quality of the interaction or the extent to which it was a two-way process. Nevertheless, since both the information requested and the information provided are presented, the data reflect pieces of a two-way process or discussion.

†Providers took STI histories for clients who had never used family planning before and for those who were resuming method use after having stopped for a substantial period (usually for pregnancy and childbirth); we did not observe the history-taking for clients who were switching from one method to another, as these women's histories had been taken previously.

sults are encouraging, further efforts are needed to ensure coverage of STI prevention issues in all consultations.

• **Client knowledge.** In their exit interviews, 50% of clients reported having been told of methods that protect against STIs, including HIV. This proportion did not vary by the client's age, level of education or work status. When clients were asked which method they were told would protect against STIs (they could cite only one), they overwhelmingly cited male condoms (93%), with very small proportions mentioning female condoms (5%) or abstinence (2%).

When we compared clients' reports on whether their provider discussed STI protection with data from the direct observations, a significant difference emerged: Although 72% of women we observed participating in such a discussion reported it, 33% of those whose consultation did not cover the topic nonetheless reported having discussed it, possibly out of courtesy (p<.001).

Only 11% of the Lusaka clinic clients had either ever used condoms or obtained them on the day of their visit for future use. Ever-use of condoms varied significantly by age, with 47% of clients younger than 20 having ever used one, compared with no client aged 40 or older (p<.001).

Among the clients classified as users of a method other than the condom, 75% reported knowing that their method does not protect against STIs, 6% mistakenly thought that their method does offer protection, and the remaining 19% did not know. Knowledge that a nonbarrier method offers no protection increased with education, from 70% of women with no schooling or only primary schooling and 81% of those who had completed secondary school to 97% of those who had studied beyond secondary school (p<.001). Furthermore, exit-interview data indicate that 85% of the clients we observed being given this informa-

**TABLE 4. Odds ratios (and 95% confidence intervals) from two logistic regression models of the determinants of whether women using methods other than the condom would know at their exit interview that their method does not protect against STIs**

Characteristic	Unadjusted (N=2,241)	Adjusted† (N=2,231)
Observed being told by provider	2.63 (2.14–3.23)***	2.96 (2.39–3.66)***
Age		
13–19	na	0.77 (0.58–1.02)
20–29 (ref)	na	1.00
30–39	na	1.06 (0.77–1.46)
40–49	na	0.37 (0.20–0.69)**
Paid employee	na	1.21 (0.94–1.56)
Married	na	0.79 (0.50–1.24)
Wants no more children	na	1.28 (0.96–1.72)
Education		
None/primary (ref)	na	1.00
≥secondary	na	2.21*** (1.76–2.76)
–2 log likelihood	2,385.37	2,289.43

\*\*p<.01. \*\*\*p<.001. †Adjusted for the effects of client characteristics. Notes: The N for the unadjusted analysis is reduced to 2,241 women, because providers were unable to ascertain method knowledge for 37 of the 2,278 users of methods other than the condom. The N for the adjusted analysis is reduced further to 2,231, because 10 women did not supply data on age. In this and the following tables, na=not applicable and ref=reference group.

tion knew that their method does not protect against STIs, compared with 68% of those who had not been similarly informed ( $p<.001$ ). This relatively high knowledge level among women who had not received the information during their visit suggests that many women had heard the message elsewhere before coming to the clinic.

• **Determinants of client knowing about STI protection at exit interview.** In an analysis limited to women who used methods other than the condom, we used logistic regression techniques to determine whether women who were told during their consultation that their method does not protect against STIs were more likely to know that information during their exit interview than were women who were not told. The results show that even after controlling for client characteristics such as age and education, women who had been informed by their provider were significantly more likely to know this critical piece of information than were those who had not been informed (odds ratio, 3.0, Table 4). In addition, women with at least a secondary education were significantly more likely to know about their method's lack of STI protection than were those with less education (2.2), and clients aged 40–49 were significantly less likely to know than were those aged 20–29 (0.4). (Additional variables that proved nonsignificant, such as the client's religion, number of children, partner's age and age differential, were excluded from the final model.)

• **Determinants of client receipt of STI protection information.** Because telling women who used methods other than the condom that their method does not prevent STI transmission increased the probability that they would be aware of this during their exit interview, we examined factors that might determine whether clients received such information at their consultation (Table 5). We identified determinants of clients' receipt of STI protection information using three models—one that controlled for client characteristics only (Model 1), one that controlled for client and provider characteristics (Model 2) and one that controlled for client, provider and clinic characteristics (Model 3).

Having paid employment and having at least a secondary education were initially associated with lowered odds of receiving information about STI protection (odds ratios, 0.6 and 0.8, respectively). These two factors retained their significance after provider and clinic characteristics were added to the analysis. As expected, the results of the final model (column 3) show that the odds that clients who used methods other than the condom would be informed about their method's lack of protection rose with the number of years the provider had worked at the clinic.

Interestingly, clients of providers who had studied beyond secondary school were significantly less likely to have been informed than were clients of less-educated providers. (To test whether an interaction between the provider's and client's educational levels could account for this finding, we tested for an interaction variable, but it proved to be nonsignificant.) Similarly, the difference between providers' and clients' educational levels was nonsignificant. The two educational-level variables were independently significant.

**TABLE 5. Odds ratios (and 95% confidence intervals) from three logistic regression models of the determinants of whether women using methods other than the condom were told that their method offers no protection against STIs**

Characteristic	Model 1 (N=2,268)	Model 2 (N=2,056)	Model 3 (N=2,056)
<b>Client characteristics</b>			
Age			
13–19	1.03 (0.81–1.32)	0.98 (0.76–1.28)	0.98 (0.76–1.28)
20–29 (ref)	1.00	1.00	1.00
30–39	1.31 (1.02–1.68)*	1.30 (0.99–1.71)	1.30 (0.99–1.71)
40–49	1.24 (0.72–2.15)	1.00 (0.55–1.83)	1.00 (0.55–1.83)
Paid employee	0.64 (0.52–0.78)***	0.67 (0.54–0.84)***	0.67 (0.54–0.84)***
Married	1.00 (0.71–1.41)	0.93 (0.64–1.35)	0.93 (0.64–1.35)
Wants no more children	0.96 (0.76–1.20)	0.94 (0.73–1.20)	0.94 (0.73–1.20)
Education			
None/primary (ref)	1.00	1.00	1.00
≥secondary	0.79 (0.66–0.94)**	0.78 (0.65–0.94)*	0.78 (0.64–0.94)*
<b>Provider characteristics</b>			
Years at clinic	na	1.15 (1.11–1.20)***	1.16 (1.11–1.20)***
Education	na		
Secondary (ref)	na	1.00	1.00
≥secondary	na	0.61 (0.50–0.74)***	0.61 (0.50–0.74)***
<b>Clinic characteristics</b>			
Large clinic (A or B level)	na	na	0.99 (0.80–1.23)
–2 log likelihood	3,107.40	2,698.40	2,698.40

\* $p<.05$ . \*\* $p<.01$ . \*\*\* $p<.001$ . Notes: Model 1 controls for the effects of client characteristics. Model 2 controls for the effects of client and provider characteristics. Model 3 controls for the characteristics of clients, providers and clinics. The sample of 2,278 users of methods other than the condom is reduced by 10 missing observations for age in Model 1, and by an additional 212 cases in Models 2 and 3, because the provider connected with those cases could not be interviewed.

• **Determinants of accurate retention among clients who received STI protection information.** Finally, we looked at the last link of the information-exchange puzzle—what determines whether a client who is told about her method's inability to protect against STIs is then able to report that knowledge—using three models that successively controlled for client, provider and clinic characteristics (Table 6, page 102). In the final model (column 3), having a secondary or higher education was positively associated with the odds that the client would retain the information imparted to her during the clinic visit. However, the educational attainment of providers appeared to create the opposite effect: Clients informed by providers who had gone beyond secondary school were less likely to retain knowledge about their method's inability to protect against STIs than were clients whose providers had a secondary education only (odds ratio, 0.5). Finally, clients who were informed about their method in larger clinics were less likely to retain that knowledge than were clients who were counseled in smaller clinics (0.4).

## DISCUSSION AND CONCLUSIONS

Family planning clinics in Lusaka appear to have the requisite infrastructure needed to provide integrated services, particularly those related to STI prevention. IEC materials seem to be readily available, and providers have been trained in STI counseling. Although promotion of dual protection is also feasible, unreliable supplies of male and female condoms are a problem. An article in a Zambian newspaper that reported month-long periods when Planned Parent-

**TABLE 6. Odds ratios (and 95% confidence intervals) from three logistic regression models of the determinants of whether women using methods other than the condom who were told about STI protection correctly received that message**

Characteristic	Model 1 (N=1,067)	Model 2 (N=952)	Model 3 (N=952)
<b>Client characteristics</b>			
Age			
13–19	0.70 (0.45–1.10)	0.76 (0.47–1.24)	0.77 (0.47–1.26)
20–29 (ref)	1.00	1.00	1.00
30–39	1.16 (0.68–1.98)	1.09 (0.63–1.89)	1.08 (0.62–1.87)
40–49	0.45 (0.17–1.19)	0.51 (0.17–1.54)	0.49 (0.16–1.50)
Paid employee	1.19 (0.74–1.93)	1.18 (0.72–1.95)	1.12 (0.67–1.85)
Married	0.50 (0.20–1.29)	0.54 (0.21–1.39)	0.61 (0.24–1.59)
Wants no more children	1.24 (0.76–2.03)	1.20 (0.72–2.00)	1.24 (0.74–2.06)
Education			
None/primary (ref)	1.00	1.00	1.00
≥secondary	2.04 (1.36–3.05)**	1.82 (1.20–2.76)**	1.64 (1.08–2.50)*
<b>Provider characteristics</b>			
Years at clinic	na	0.99 (0.91–1.08)	1.02 (0.93–1.13)
Education			
Secondary (ref)	na	1.00	1.00
>secondary	na	0.62 (0.42–0.91)*	0.53 (0.35–0.81)**
<b>Clinic characteristics</b>			
Large clinic (A or B level)	na	na	0.40 (0.24–0.68)**
–2 log likelihood	880.83	787.99	774.69

\*p<.05. \*\*p<.01. Notes: Model 1 controls for the effects of client characteristics. Model 2 controls for the effects of client and provider characteristics. Model 3 controls for the characteristics of clients, providers and clinics. Of the 1,095 users of a method other than the condom who were observed being told that their method offered no STI protection, 28 cases are omitted from Model 1 because no data were available on knowledge about method protection for those women, and an additional 115 cases are omitted from Models 2 and 3 because the provider connected with those cases could not be interviewed.

hood clinics in one region were out of stock of both male and female condoms corroborates this finding.<sup>13</sup>

In addition to the general access obstacles posed by logistical problems with stock, providers' minimum-age requirements may impede condom use for adolescent clients. Younger women may be finding alternative sources for condoms, as adolescents in our sample were more likely than older women to have ever used a condom. Nevertheless, adolescents ought to have access to condoms at clinics as well.

Attitudes toward providing condoms to adolescents warrant further investigation. The Zambian national family planning guidelines promote increased access for this population (i.e., through not requiring consent from parents or guardians, through training providers in the specifics of adolescents' needs and in gender-sensitive counseling, and by designating young adults as a priority for information and services). These guidelines, however, may require additional program strategies to reach full implementation. For this reason, workshops will be conducted on the reproductive health guidelines to increase their use.

Family planning clinics are not as well prepared to integrate STI diagnostic services as they are to add preventive services. None of the clinics test for chlamydia or gonorrhea, and fewer than two-thirds of providers have been trained in any STI diagnostic procedures. Although the study did not collect information on STI treatment services, shortages of STI medications have been reported elsewhere as a result of the health care reform initiative currently occurring in Zambia.<sup>14</sup> The feasibility of integrating STI di-

agnosis and treatment during family planning consultations requires further study.

The national guidelines for the integration of STI prevention services into family planning clinics are being partially met. Providers are beginning to talk about STI issues with their clients. However, these conversations are still happening in only about one-half of consultations, while guidelines mandate that these topics be broached in all. Hesitancy to discuss these issues could reflect difficulties in talking about sexuality and related topics. Furthermore, providers clearly felt more comfortable discussing some sexuality topics than others. For example, while 12% of consultations covered whether the client had concerns about her risks of contracting an STI, only 4% included a question on her number of sexual partners. A national situation analysis conducted just one year earlier found similar results—only 5% of new clients were asked questions that touched directly on the nature of their sexual relationships.<sup>15</sup>

Providers admit that barriers to open communication exist; for example, 19% of those interviewed in a national study reported discomfort in discussing sexual behavior and STIs with their clients.<sup>16</sup> This finding suggests that ways to ameliorate communication on sexuality issues should be discussed with providers and clients. Studies need to examine which approaches to encouraging discussions on these issues would be culturally feasible, both for clients and providers, and what these approaches would require in terms of intervention inputs (i.e., funding, additional training and staff, visual aides and other IEC materials).

STI prevention services imply the provision of information during client-provider interactions. We looked at one piece of critical knowledge from the information-exchange process—the knowledge among women using methods other than the condom that their method does not offer protection from HIV and other STIs. We found that both client and provider characteristics played a role in the transfer of this information. Although a similar study conducted in Kenya found that less-educated clients received lower-quality reproductive health care,<sup>17</sup> less-educated clients in our Zambian study were more likely than better-educated clients to be told by their provider that their method did not offer STI protection. However, less-educated clients were less likely than better-educated clients to correctly relate this information during their exit interview, whether or not they had actually received the information during their consultation. Even when less-educated women (i.e., those with less than a secondary education) had been informed about their method, they were less likely than better-educated clients to be able to report this information at their exit interview.

These findings have several implications. Providers need to tell every family planning user who receives a new method about the protection it does or does not provide against STIs, regardless of the client's educational level. Repetition can only reinforce the message. Furthermore, ways of improving communication with less-educated clients need to be explored, to ensure that the information provided to this population is, in fact, "received" and understood. For ex-

ample, providers might consider distributing written IEC materials as well as giving information verbally.

The providers' educational level was an important factor in this process. In general, better-educated providers were less likely to provide information about methods' STI prevention abilities than were providers with fewer years of schooling, and when they did, they were less likely to do it effectively (i.e., their clients were less likely than clients of less-educated providers to retain the message).

Because the difference between the client's education and her provider's education was not significant in itself, this finding does not necessarily reflect a communication gap between better-educated providers and less-educated clients. However, in the Zambian context, postsecondary education may be available only to women from higher socioeconomic strata; thus, these providers may come from different sociocultural contexts than less-educated providers and less-educated clients. Therefore, one possible explanation for our finding is that communication between clients and providers who come from higher socioeconomic backgrounds is more difficult because of social distance.

Regardless of the effects of the educational levels of providers and clients, providing information on STI protection to a woman who uses a method other than the condom increases the chances that she will know that her method offers no protection against STIs. Therefore, providing prevention information during family planning consultations is an important and useful goal. Knowledge about STI and HIV protection does not necessarily lead to behavior change, however.<sup>18</sup> Women may not be able to translate knowledge about STI prevention into practice, especially given that men are often the primary decision-makers about condom use.

Nevertheless, knowledge is the first step to empowerment, and increasing women's knowledge of STI prevention is a worthwhile endeavor in itself. This information should be provided in all client interactions, and increasing attention should be paid to ensuring that the client is fully processing the information. Program managers and the research community should explore ways to increase the potential for integrated services, to study the costs involved and to measure the effect such integration has on both knowledge and behaviors.

## REFERENCES

1. Mukaire J, Kalikwani F and Maggwa BN, *Integration of STI and HIV/AIDS Services with MCH-FP Services: A Case Study of the Busoga Diocese Family Life Education Program, Uganda*, Nairobi, Kenya: Population Council, 1997.
2. Maggwa BN et al., *Assessing the Potential Demand for and Cost-Effectiveness of Integrating RTI/HIV Management Services with Clinic-Based Family Planning Services in Zimbabwe*, Nairobi, Kenya: Population Council, 1999; and Zurayk H et al., *Comparing women's reports with medical diagnoses of reproductive morbidity conditions in rural Egypt*, *Studies in Family Planning*, 1995, 26(1):14-21.
3. Dehne K and Snow R, *Integrating STI Management into Family Planning Services: What Are the Benefits?* Occasional Paper, Geneva: World Health Organization, 1999, No. 1; Solo J et al., *Improving the Management of STIs Among MCH/FP Clients at the Nakuru Municipal Council Health Clinics*, Nairobi, Kenya: Population Council, 1999.
4. Stover J and Johnston A, *The Art of Policy Formulation: Experiences*

*from Africa in Developing National HIV/AIDS Policies*, POLICY Occasional Papers, Washington, DC: The Futures' Group, 1999, No. 3.

5. Record J and Malungo S, *Sexuality in the era of HIV/AIDS in Zambia: socio-economic factors, cultural practices and emerging behaviours*, paper presented at the 12th World AIDS Conference, Geneva, June 28-July 3, 1998.
6. Sukwa TY et al., *A population based study of HIV infection in Ndola, Zambia*, paper presented at the International Conference on AIDS and STDS in Africa, Lusaka, Zambia, Sept. 12-16, 1999.
7. Central Statistical Office, Ministry of Health and Macro International, *Zambia Demographic and Health Survey, 1996*, Calverton, MD, USA: Central Statistical Office and Macro International, 1997.
8. Ministry of Health, *Family Planning in Reproductive Health: Policy Framework, Strategies, Guidelines*, Lusaka, Zambia: Ministry of Health and Central Board of Health, 1997.
9. Central Statistical Office, *Zambia Situation Analysis Study, 1997: Descriptive Tables, Reproductive and Child Health Survey*, Lusaka, Zambia: Central Statistical Office, 1998.
10. Ministry of Health, 1997, op. cit. (see reference 8); and Planned Parenthood of Zambia, *Our programme scope*, <<http://www.ppaz.org.zm/programmescop.htm>>, accessed Apr. 24, 2002.
11. Central Statistical Office, 1998, op. cit. (see reference 9).
12. Miller R et al., *The Situation Analysis Approach to Assessing Family Planning and Reproductive Health Services: A Handbook*, New York: Population Council, 1997.
13. PPFZ office runs out of condoms, *Times of Zambia*, Feb. 3, 2000, p. 2.
14. Munro M, *Health sector reform in Zambia: benefits and constraints for service delivery*, in: *The Working Group on Reproductive Health and Family Planning, The Implications of Health Sector Reform for Reproductive Health and Rights*, Washington, DC: Center for Health and Gender Equity and the Population Council, 1998.
15. Haberland N et al., *Unrealized quality and missed opportunities in family planning services*, in: Miller K et al., eds., *Clinic Based Family Planning and Reproductive Health Services in Africa: Findings from Situation Analysis Studies*, New York: Population Council, 1998.
16. Askew I, Fassihian G and Maggwa BN, *Integrating STI and HIV/AIDS services at MCH/family planning clinics*, in: Miller K et al., eds., 1998, op. cit. (see reference 15).
17. Ndhlovu L, *Determinants of quality of family planning services: a case study in Kenya*, in: Miller K et al., eds., 1998, op. cit. (see reference 15).
18. Rutenberg N, Biddlecom AE and Kaona FAD, *Reproductive decision-making in the context of HIV and AIDS: a qualitative study in Ndola, Zambia*, *International Family Planning Perspectives*, 26(3):124-130.

## RESUMEN

**Contexto:** Lusaka, Zambia, presenta un elevado nivel de prevalencia de infección del VIH; igualmente, la tasa de uso de anticonceptivos es relativamente elevada en dicha ciudad, sobre todo en el contexto de un país del África Subsahariana. Así, las clínicas de planificación familiar tienen el potencial de desempeñar un importante papel en materia de prevención del VIH y otras infecciones transmitidas sexualmente (ITS).

**Métodos:** Datos obtenidos de un análisis situacional de 1998 llevado a cabo en ocho clínicas de planificación familiar del sector público, en Lusaka, Zambia, fueron utilizados para medir la capacidad de estas clínicas para ofrecer servicios de prevención y de diagnóstico de ITS. Junto con las observaciones de las interacciones entre 2.452 clientas y proveedores, se analizaron los datos de entrevistas con 42 proveedores y con 3.201 clientas para investigar el intercambio de información acerca de la incapacidad de los métodos que no son de barrera para prote-



ger contra las ITS. Finalmente, se utilizaron análisis multivariados para investigar los determinantes de haber recibido esta información, y de si la misma había sido retenida por parte de las usuarias de otros métodos que no fueran el condón.

**Resultados:** Los resultados de los análisis multivariados indican que las clientas que no usaban condones y a las que se les indicó que sus métodos no ofrecían protección contra las ITS, tenían una probabilidad tres veces mayor de conocer este hecho al finalizar su entrevista que aquellas mujeres a quienes no se les informó al respecto. Entre las clientas que fueron informadas por sus proveedores, las que tenían mayor nivel educativo, aquellas cuyos proveedores tenían menos años de educación y las que asistían a clínicas más pequeñas eran más proclives que las otras mujeres a haber “recibido” correctamente el mensaje sobre la prevención de las ITS.

**Conclusiones:** Si bien se están realizando esfuerzos para integrar los servicios de prevención de las ITS a las clínicas de planificación familiar en Zambia, dichos esfuerzos deben ser reforzados. Los niveles educativos, tanto de los proveedores como de las clientas, pueden constituir barreras al logro de una exitosa transferencia de la información sobre las ITS durante las interacciones entre proveedores y clientas.

## RÉSUMÉ

**Contexte:** Lusaka, en Zambie, présente, à la fois, une haute prévalence d'infections à VIH et un taux de prévalence contraceptive relativement élevé pour l'Afrique subsaharienne. Dans ce contexte, les cliniques de planning familial pourraient potentiellement jouer un rôle important dans la prévention du VIH et d'autres infections sexuellement transmissibles (IST).

**Méthodes:** Les données d'une analyse de situation menée en 1998 dans huit cliniques publiques de planning familial de Lusaka servent à mesurer la préparation de ces cliniques à offrir des services de prévention et diagnostic des IST. L'observation de 2.452 échanges entre clientes et prestataires et les données

d'entrevue avec 42 prestataires et 3.201 clientes servent à l'examen de la communication sur l'incapacité des méthodes sans barrière physique à protéger contre les IST. Enfin, l'analyse multivariée sert à identifier les déterminants de la réception de cette information et de sa rétention parmi les utilisatrices de méthodes autres que le préservatif.

**Résultats:** Selon les résultats de l'analyse multivariée, les clientes qui n'utilisaient pas le préservatif et qui avaient été informées de l'incapacité de leur méthode à les protéger contre les IST avaient une probabilité de le savoir lors de leur interview de sortie trois fois celle des femmes qui n'avaient pas été informées de ce fait. Parmi les clientes informées par leur prestataire, celles qui avaient atteint un niveau d'instruction plus élevé, celles dont le prestataire était moins éduqué et celles qui fréquentaient les cliniques de moindre envergure étaient toutes plus susceptibles que les autres d'avoir «reçu» correctement le message de prévention des IST.

**Conclusions:** Bien qu'entrepris, les efforts d'intégration de services IST dans les cliniques de planning familial de Zambie doivent être renforcés. Le niveau d'éducation des prestataires comme des clientes peut faire obstacle au succès du transfert de l'information sur la prévention des IST lors des échanges entre clientes et prestataires.

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